TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371

ATTORNEY'S DOCKET NUMBER: 19380.0006

U.S. APPLICATION NO. (If known, see 37 CFR 1.5): 09/868244

INTERNATIONAL APPLICATION NO.	INTERNATIONAL FILING DATE	PRIORITY DATE CLAIMED
PCT/FI99/01034	15 December 1999	18 December 1998

TITLE OF INVENTION

A CONSTRUCTION ELEMENT FOR A BOWLING LANE AND A BOWLING LANE

APPLICANT(S) FOR DO/EO/US

Mikko Sievänen, Joni Hietala, and Pentti Järvelä

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. [x] This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. § 371.
3. [x] This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).
4. [x] A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.

5. [x] A copy of the International Application as **published** (35 U.S.C. 371(c)(2)) **WO 00/37151**
   a. [x] is transmitted herewith (required only if not transmitted by the International Bureau).
   b. ☐ has been transmitted by the International Bureau.
   c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☐ A translation of the International Application into English (35 U.S.C. 371(c)(2)).

7. ☐ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
   a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
   b. ☐ have been transmitted by the International Bureau.
   c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
   d. ☐ have not been made and will not be made.

8. ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3).

9. ☐ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).

10. ☐ A translation of the Annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11. to 16. Below concern other document(s) or information included:

11. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98, PTO-1449

12. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.

13. [x] A FIRST preliminary amendment.
    ☐ A SECOND or SUBSEQUENT preliminary amendment.

14. ☐ A substitute specification.

15. ☐ A change of power of attorney and/or address letter

16. [x] Other items or information:
    PCT/ISA/210
    PCT/IB/308
    PCT/IPEA/409

JC18 Rec'd PCT/PTO

U.S. APPLICATION NO. (If known, see 37 CFR 1.5)	INTERNATIONAL APPLICATION NO.	ATTORNEY'S DOCKET NUMBER
09/868244	PCT/FI99/01034	19380.0006

[x] The following fees are submitted:

	CALCULATIONS	PTO USE O.
Basic National Fee (37 CFR 1.492(a)(1)-(5)):		
Search Report has been prepared by the EPO or JPO.....**$860.00**		
International preliminary examination fee paid to USPTO (37 CFR 1.482) **$690.00**		
No international preliminary examination fee paid to USPTO (37 CFR 1.482) but international search fee paid to USPTO (37 CFR 1.445(a)(2))**$760.00**		
Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO.....**$1,000.00**		
International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(2)-(4).....**$100.00**		
ENTER APPROPRIATE BASIC FEE AMOUNT =	$1,000.00	
Surcharge of **$130.00** for furnishing the oath or declaration later than ☐ 20 [x] 30 months from the earliest claimed priority date (37 CFR 1.492(e)).	**$ 130.00**	

Claims	Number Filed	Number	Rate		
Total Claims	10 - 20 =	0	X **$18.00**	$	
Independent Claims	1 - 3 =	0	X **$80.00**	$	
Multiple dependent claim(s)(if applicable)			+ **$270.00**	$	
TOTAL OF ABOVE CALCULATIONS =				**$1,130.00**	
Reduction by 1/2 for filing by small entity, if applicable.				$	
SUBTOTAL =				**$1,130.00**	
Processing fee of **$130.00** for furnishing the English translation later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492(e)).				$	
TOTAL NATIONAL FEE =				**$1,130.00**	
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). **$40.00** per property +				$	
TOTAL FEES ENCLOSED =				**$1,130.00**	
				Amount to be: Refunded	**$**
				Charged	**$1,130.00**

a. ☐ A check in the amount of $___ to cover the above fees is enclosed.

b. [x] Please charge my Deposit Account No. **19-5127, Order No. 19380.0006** in the amount of **$1,130.00** to cover the above fees. A duplicate copy of this sheet is enclosed.

c. [x] The Director is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. **19-5127**. A duplicate copy of this sheet is enclosed.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b) must be filed and granted to restore the application to pending status

SEND ALL CORRESPONDENCE TO:
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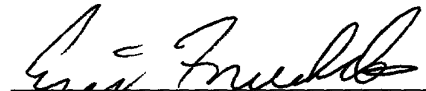
SIGNATURE

Eric J. Franklin
NAME

37,134

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	:	
	:	
Mikko Sievänen et al.	:	
	:	
Serial No. -- Corresp. to PCT/FI99/01034	:	Art Unit: –
	:	
Filed: June 15, 2001	:	Examiner: –

For: A CONSTRUCTION ELEMENT FOR A BOWLING LANE AND A BOWLING LANE

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, DC 20231

Sir:

Prior to examination, please amend the above-identified application as follows:

In the Claims:

Clean copy of amended claims:

3. The construction element (4) according to claim 1, **characterized** in that the cross-section of the cell (6) is shaped as a regular hexagon.

4. The construction element (4) according to claim 1, **characterized** in that the material of the supporting structure layer (3) is aluminium.

5. The construction element (4) according to claim 1, **characterized** in that the board layer (2) is a wood-based board.

6. The construction element (4) according to claim 1, **characterized** in that the laminate layer (1) is made of paper impregnated with resin and composed of one or more layers.

7. The construction element (4) according to claim 1, **characterized** in that the laminate layer (1), the board layer (2) and the supporting structure layer (3) are fixed together permanently.

8. The construction element (4) according to claim 1, **characterized** in that the construction element is constructed to be mirror symmetrical in such a way that on both sides of the supporting structure layers (3) there is a board layer (2), and on the outer surface of both board layers (2) there is a laminate layer (1).

Amended claims

3. (Amended) The construction element (4) according to [any of the foregoing claims] claim 1, **characterized** in that the cross-section of the cell (6) is shaped as a regular hexagon.

4. (Amended) The construction element (4) according to [any of the foregoing claims] claim 1, **characterized** in that the material of the supporting structure layer (3) is aluminium.

5. (Amended) The construction element (4) according to [any of the foregoing claims] claim 1, **characterized** in that the board layer (2) is a wood-based board.

6. (Amended) The construction element (4) according to [any of the foregoing claims] claim 1, **characterized** in that the laminate layer (1) is made of paper impregnated with resin and composed of one or more layers.

7. (Amended) The construction element (4) according to [any of the foregoing claims] claim 1, **characterized** in that the laminate layer (1), the board layer (2) and the supporting structure layer (3) are fixed together permanently.

8. (Amended) The construction element (4) according to [any of the foregoing claims] claim 1, **characterized** in that the construction element is constructed to be mirror symmetrical in such a way that on both sides of the supporting structure layers (3) there is a board layer (2), and on the outer surface of both board layers (2) there is a laminate layer (1).

Remarks

Applicants have amended the claims to eliminate multiple dependencies to reduce the filing fee.

Respectfully submitted,

Date: June 15, 2001

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A construction element for a bowling lane and a bowling lane

The present invention relates to a bowling lane and a construction element of the same. Said construction element comprises a laminate layer, a board layer as well as a supporting structure layer.

Typically, bowling lanes are composed of a substructure and boards attached thereto or of wood strips attached to each other. The substructure is usually a trussed construction made of wood beams. Typically, there are several boards placed on top of each other so that the required strength properties are attained. If the surface material of the lane is synthetic material instead of wood, a laminate layer is typically attached on the outer surface of the topmost board. The boards are mounted on the substructure by means of screws in such a manner that in the direction of the lane the difference in levels of the joints between the elements may be 0.635 mm (1/40") at the most.

The bowling lane is composed of an approach, a ball track and a pin deck. Different parts of the bowling lane require different qualities, which have to be taken into account when the lane is designed. By the approach, the lane has to endure e.g. the weight of the bowler, and as far as the ball track and the pin deck are concerned, impact resistance and the friction on the surface of the lane are important features.

Known bowling lanes and construction elements of bowling lanes are discussed for example in patents of General Electric Co US 4231573, US4307883, US4320898, US 4337290, US 4379553, US 4456253 and US 4599124 as well as US 4205842. The applicant of this patent also manufactures bowling lanes by applying a particular method.

The patents US 4231573, US4307883, US 4337290, US 4379553, US 4456253 and US 4599124 all introduce a similar construction in which the laminate is fixed on a bottom plate, whereby the topmost construction element of the bowling lane is formed. The material of the laminates and/or bottom plates varies to some extent, for example in the patent US 4379553 the laminate is fireproof and in the patent US 4231573 concrete is suggested as a bottom plate. Typically the bottom

plates used are wood-based boards. The patent US 4456253 discloses a two-sided construction element which can be turned around when the surface which is used is worn out.

The patent US 4320898 discloses a somewhat different solution for a construction element of a bowling lane. The inner part of the construction element is composed of wood strips which are attached to each other by means of glue or nails. The humidity of the wood strips in the inner part is standardized and the inner part is closed from the environment by means of a laminate attached on the outer surfaces as well as a moisture barrier attached to the corners. The construction element can be attached directly on top of the substructure.

The patent US 4205842 discloses a bowling lane solution in which the ball track is formed of fibre board on top of which a laminate is attached. On the approach lane as well as on the pin deck the laminate is attached on rigid boards which can be made of *e.g.* aluminum.

At present, the applicant of this patent manufactures bowling lanes in such a way that two superimposed MDF boards are attached on top of a trussed construction made of wood beams, as well as a high pressure laminate board which is made of paper impregnated with resin. The term MDF board refers to a board in which the wood-based construction parts, for example the fibres and wood chips, are treated with an adhesive medium, thus forming a mat, whereafter it is pressed in the form of boards by means of pressure and heat.

The MDF boards are placed on top of the truss in such a way that the joint of the boards in the first board layer is situated in a different location than the joint of the boards in the second boards layer. Thus, weak spots do not occur in the construction.

The problems of known construction elements of bowling lanes include complexity of installation, heavy elements, relatively high price of the elements as well as poor sales value due to the complexity of the installation/disassembly. The construction of the bowling lanes is not optimized either, but known bowling lane constructions comprise

components which are substantially too durable with respect to the target of use, which components, however, easily react to changes in climate conditions. On the other hand, the different parts of the lane require different qualities, and thus, a completely equal lane construction is not the best possible one all over the lane.

The purpose of the bowling lane element according to the invention is to avoid the problems of known bowling lane constructions. The bowling lane element according to the invention will be characterized in what will be presented in the characterizing part of the appended claim 1.

The bowling lane element according to the invention is light, cheap and it can be easily disassembled, assembled and transferred, wherein it also possesses resale value. It endures humidity and temperature changes better than known bowling lane constructions.

By using said elements, it is also possible to build bowling lanes for temporary use, *e.g.* for happenings which last only a fixed period of time. The elements can also be constructed in such a way that they can be used either side facing upward, and thus, the elements can be turned when the other side has worn out and become unusable.

Superimposed boards are not necessary, but the bowling lane element can be fixed directly on top of the substructure. The substructure of the lane element can be made lighter in weight, because the elements are more rigid and they exert a substantially smaller stress on the substructure than known solutions. Similarly, by altering the thickness of different layers of the bowling lane element while keeping the overall thickness of the element constant, a suitable construction in view of the requirements of different lane sections is attained.

In the following, the bowling lane and the bowling lane element according to the invention will be described in more detail by means of an example and with reference to the appended drawings:

Fig. 1 shows the structure of a bowling lane element.

Fig. 2 shows the structure of a cellular board in a cross-section A-A of Fig. 1.

Fig. 3 shows a side-view of the structure of the bowling lane.

A bowling lane with all its devices is quite a complex construction, which, in addition to the lane, includes a ball return system and a pin setting apparatus. This example, however, only discusses the structure of the actual bowling lane.

A bowling lane element according to Fig. 1, to which reference is made in its entirety by reference numeral 4, is formed of a laminate layer 1, a board layer 2, and a supporting structure layer 3. In the example, the laminate layer 1 is a high pressure laminate, the board layer 2 is a wood-based board and the supporting structure layer 3 is a cellular board.

The high pressure laminate 1 constitutes the actual surface structure, as it is an impact resistant and sufficiently hard and stiff layer with good friction and abrasion properties. Underneath the laminate 1, a wood-based board 2, preferably made of high-density chipboard, constitutes a layer which endures impact stress. The density of this chipboard is advantageously over 1000 kg/m^3. The cellular board 3 has a high specific stiffness, and it endures well the changes in climatic conditions (heat, humidity). It is also a light-weighted structure, which substantially decreases the mass of the lane element.

The laminate 1 is made of multilayer paper impregnated with resin, and it is fixed on the wood-based board 2 which is 5 to 30 mm thick. The thickness of the laminate varies in different sections of the lane, for example by the pin deck the laminate 1 is thicker, whereas the wood-based board 2 and/or the cellular board 3 has to be thinner so that the overall thickness of the lane element 4 equals the thickness of the other lane elements, because otherwise the installation of the elements becomes unreasonably difficult. When the bowling lane is dimensioned, the starting point is that when the element is loaded with a mass of

300 kg, it must not bend more than 1.016 mm (4/100"), if a span length of 1 m is used in the substructure.

The laminate 1, the wood-based board 2 and the cellular board 3 are attached to each other by means of an adhesive medium. The adhesive medium, which has to be high-modulus and very durable, can be in a form of a solution, paste or film.

According to Fig. 2, the cellular board 3 is composed of a wall 5 which separates cells 6 which are attached to each other wall to wall. The wall 5 is made of aluminium. The thickness of the cellular board varies between 10 and 30 mm, and the diameter of the cells can vary in the area of 5 to 15 mm. Standard dimensions are 6.35 mm (1/4") or 9.525 mm (3/8"). In the bowling lane element 4 according to this example, the cellular board contains cells which are hexagonal, so-called honeycombs. By means of the honeycomb structure it is possible to attain substantially equal strength properties irrespective of the direction.

The bowling lane element 4 can be constructed as a mirror image in such a way that on both sides of the cellular board 3 there is a wood-based board 2, on the outer surface of which there is a laminate 1. By means of such a structure a substantially strainless construction is attained which remains in its original shape. At the same time the advantage is attained that the board can be turned, if necessary. The sides of the bowling lane element 4 can be closed so that they become air-tight and the changes in humidity and temperature do not affect the bowling lane element 4.

Fig. 3 shows a bowling lane, which is installed on a concrete floor 7. The substructure of the lane is made of wood beams 8 of 45 x 95 mm, on top of which beams 9 are placed at regular intervals, the beams being I-beams made of wood in this case. The bowling lane element 4 is fixed to the beams 9. Adjacent bowling lane elements 4 are fixed on top of the substructure without the underlying boards to form a single uniform board layer.

When compared to a bowling lane made of laminate and MDF boards, the bowling lane constructed of construction elements 4 according to the invention has a considerably smaller mass. If the construction element 4 contains an aluminium cellular board, with a thickness of 25.4 mm (1") and the diameter of the cells is 6.35 mm (1/4"), and a wood-based board (thickness 10mm) made of high-density chipboard on both sides of the cellular board, as well as a laminate board (thickness 3.175 mm), the mass of the element of 3.3 m^2 becomes approximately 100 kg. A corresponding surface area constructed of two MDF boards and a laminate board weighs 195 kg.

The cellular structure also makes it possible *e.g.* to add a substance in the cell. One alternative is to place polyurethane in the cells to improve sound insulation.

It is obvious for anyone skilled in the art that the invention is not restricted solely to the above example, but it can vary within the scope of the claims hereinbelow. The cross-section of the cells in the cellular board can, for example, have the shape a square or an octagon. The cellular board can also be made of a material other than aluminium. It is also possible that several separate pieces with a cellular structure constitute the supporting structure layer. It is typical for all of these that the walls 5 of the cellular structure are substantially transverse to the plane of the board layers, i.e. they stand erect between the horizontal board layers 3. As a substructure of the bowling lane it is possible to use a structure other than the above-presented beam structure.

Claims:

1. A construction element (4) for a bowling lane, which is intended as a surface board of the bowling lane and which comprises at least one laminate layer (1), a board layer (2) and a supporting structure layer (3), **characterized** in that the supporting structure layer (3) is a cellular structure made of one or more pieces.

2. The construction element (4) according to the foregoing claim 1, **characterized** in that the supporting structure layer (3) is a board-like material comprising a wall (5) which separates cells (6) attached to each other wall to wall.

3. The construction element (4) according to any of the foregoing claims, **characterized** in that the cross-section of the cell (6) is shaped as a regular hexagon.

4. The construction element (4) according to any of the foregoing claims, **characterized** in that the material of the supporting structure layer (3) is aluminium.

5. The construction element (4) according to any of the foregoing claims, **characterized** in that the board layer (2) is a wood-based board.

6. The construction element (4) according to any of the foregoing claims, **characterized** in that the laminate layer (1) is made of paper impregnated with resin and composed of one or more layers.

7. The construction element (4) according to any of the foregoing claims, **characterized** in that the laminate layer (1), the board layer (2) and the supporting structure layer (3) are fixed together permanently.

8. The construction element (4) according to any of the foregoing claims, **characterized** in that the construction element is constructed to be mirror symmetrical in such a way that on both sides of the

supporting structure layers (3) there is a board layer (2), and on the outer surface of both board layers (2) there is a laminate layer (1).

9. A bowling lane which comprises a substructure which is made of beams (8, 9) and construction elements (4) according to claim 1, **characterized** in that the adjacent construction elements (4) form the only board layer on top of the substructure in the bowling lane.

10. The bowling lane according to claim 9, **characterized** in that the layers (1, 2, 3) of the construction elements (4) of the bowling lane have a different thickness in different sections of the bowling lane in such a way that the overall thickness of the construction elements (4) remains constant on the entire lane.

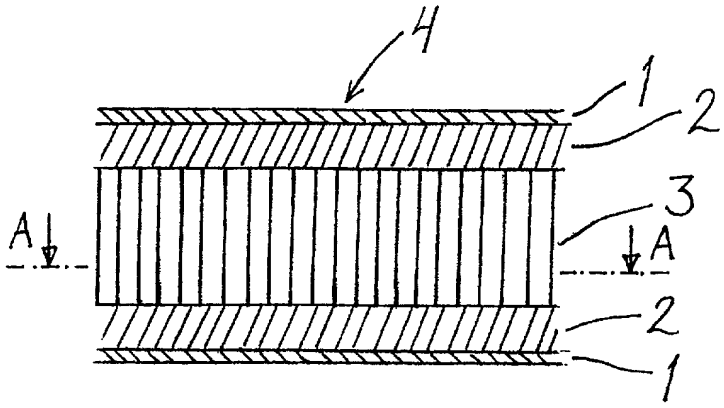

Fig. 1

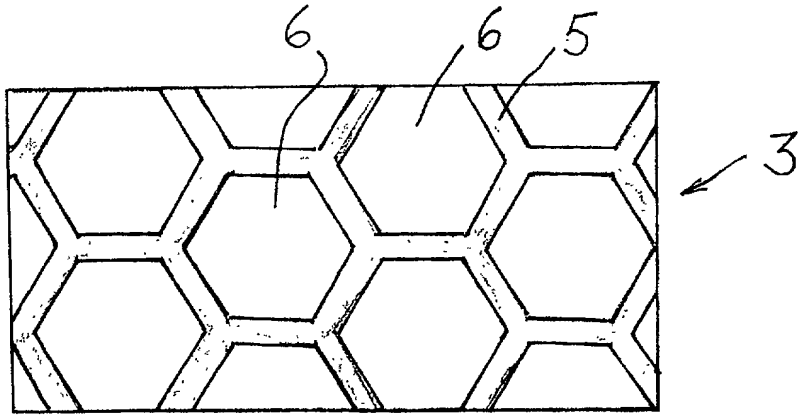

Fig. 2

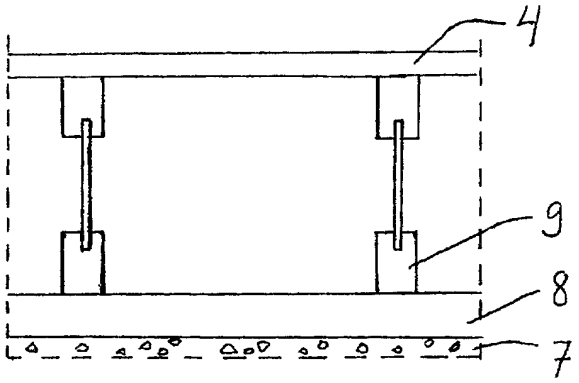

Fig. 3

COMBINED DECLARATION AND POWER OF ATTORNEY FOR
ORIGINAL, DESIGN, NATIONAL STAGE OF PCT, SUPPLEMENTAL,
DIVISIONAL, CONTINUATION OR CONTINUATION-IN-PART APPLICATION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

A CONSTRUCTION ELEMENT OF A BOWLING LANE AND A BOWLING LANE

the specification of which

a. ☐ is attached hereto

b. ☐ was filed on _____ as application Serial No. _____ and was amended on _____. (if applicable).

PCT FILED APPLICATION ENTERING NATIONAL STAGE

c. ☒ was described and claimed in International Application No. PCT/FI99/01034 filed on 15 December 1999 and as amended on _____. (if any).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 C.F.R. § 1.56.

I hereby specify the following as the correspondence address to which all communications about this application are to be directed:

SEND CORRESPONDENCE TO: Edward A. Pennington
SWIDLER BERLIN SHEREFF FRIEDMAN, LLP
3000 K Street, N.W., Suite 300
Washington, D.C. 20007-5166

DIRECT TELEPHONE CALLS TO: Eric J. Franklin, 202-424-7500

☒ I hereby claim foreign priority benefits under Title 35, United States Code § 119 (a)-(d) or under § 365(b) of any foreign application(s) for patent or inventor's certificate or under § 365(a) of any PCT international application(s) designating at least one country other than the U.S. listed below and also have identified below such foreign application(s) for patent or inventor's certificate or such PCT international application(s) filed by me on the same subject matter having a filing date within twelve (12) months before that of the application on which priority is claimed:

☒ The attached 35 U.S.C. § 119 claim for priority for the application(s) listed below forms a part of this declaration.

Country/PCT	Application Number	Date of filing (day, month, yr)	Date of issue (day, month, yr)	Priority Claimed
Finland	982743	18 December 1998		☒ Y ☐ N
				☐ Y ☐ N
				☐ Y ☐ N

☐ I hereby claim the benefit under 35 U.S.C. § 119(e) of any U.S. provisional application(s) listed below.

Provisional Application No.	Date of filing (day, month, yr)

ADDITIONAL STATEMENTS FOR DIVISIONAL, CONTINUATION OR CONTINUATION-IN-PART OR PCT INTERNATIONAL APPLICATION(S DESIGNATING THE U.S.)

I hereby claim the benefit under Title 35, United States Code § 120 of any United States application(s) or under § 365(c) of any PCT international application(s) designating the U.S. listed below.

US/PCT Application Serial No.	Filing Date,	Status (patented, pending, abandoned)/ U.S. application no. assigned (For PCT)
US/PCT Application Serial No.	Filing Date,	Status (patented, pending, abandoned)/ U.S. application no. assigned (For PCT)

☐ In this continuation-in-part application, insofar as the subject matter of any of the claims of this application is not disclosed in the above listed prior United States or PCT international application(s) in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, § 1.56(a) which occurred between the filing date of the prior application(s) and the national or PCT international filing date of this application.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or Imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

I hereby appoint the following attorneys and/or agents with full power of substitution and revocation, to prosecute this application, to receive the patent, and to transact all business in the Patent and Trademark Office connected therewith: Edward A. Pennington (Reg. No. 32,588), John P. Moran (Reg. No. 30,906), Eric J. Franklin (Reg. No. 37,134); Michael A. Schwartz (Reg. No. 40,161), Robert C. Bertin (Reg. No. 41,488), Alicia A. Meros (Reg. No. 44,937), Chadwick A. Jackson (Reg. No. 46,495), Edward J. Naidich (Reg. No. 43,826), and Sean O'Hanlon (Reg. No. 47,252) of Swidler Berlin Shereff Friedman having an address of 3000 K Street, N.W., Suite 300, Washington, D.C. 20007-5116.

9

☐ I hereby authorize the U.S. attorneys and/or agents named hereinabove to accept and follow instructions from _____ as to any action to be taken in the U.S. Patent and Trademark Office regarding this application without direct communication between the U.S. attorneys and/or agents and me. In the event of a change in the person(s) from whom instructions may be taken I will so notify the U.S. attorneys and/or agents named hereinabove.

Full name of sole or first inventor SIEVÄNEN, Mikko
Inventor's signature* FIX date 8-6-2001 (June 8, 2001)
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Citizenship: Finland

Post Office Address: Kääniementie 40, FIN-34240 KÄMMENNIEMI, Finland

Full name of second inventor HIETALA, Joni
Inventor's signature* FIX date 13.6.2001 (June 13, 2001)
Residence: FIN-33720 Tampere, Finland
Citizenship: Finland

Post Office Address: Atomikatu 1 B 43, FIN-33720 TAMPERE, ~~Finland~~

Full name of third inventor JÄRVELÄ, Pentti
Inventor's signature* date 13.6.2001 (June 13, 2001) FIX
Residence: FIN-33720 Tampere, Finland
Citizenship: Finland

Post Office Address: Mestarinkatu 12, FIN-33720 TAMPERE, Finland